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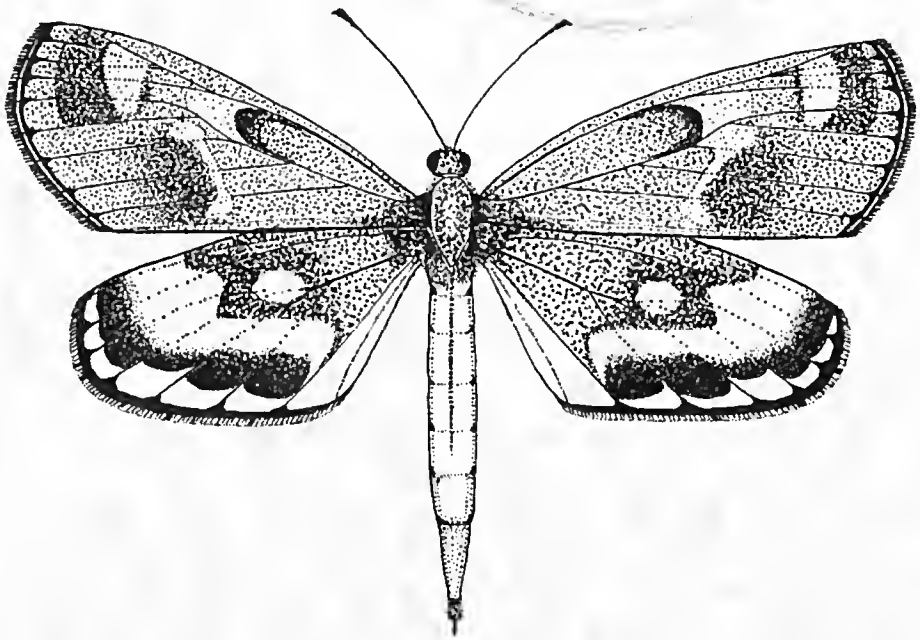

News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

(a) to stimulate the scientific study and discussion of all aspects of entomology,
(b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
(c) to compile a comprehensive list of all Victorian insect species,
(d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Tuesday of even months, with the exception of the December meeting which is held on the second Tuesday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS (2008)

Ordinary Member	$30 (overseas members $32)
Country Member	$26 (Over 100 km from GPO Melbourne)
Student Member	$18
Electronic (only)	$20
Associate Member	$ 7 (No News Bulletin)
Institution	$35 (overseas Institutions $40)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

LIFE MEMBERS: P. Carwardine, Dr. R. Field, D. Holmes, Dr. T. New, Dr. K. Walker.

Cover design by Alan Hyman.

Cover illustration: The pale Sun Moth, *Synemon selene* Klug, is an endangered species restricted to perennial grassland dominated by *Austrodanthonia* in Western Victoria. It is now extinct in SA, and was presumed extinct in Vic. until its rediscovery, in February 1991, by the late Frank Noelker and Fabian Douglas. The Victorian Populations are parthenogenetic with all specimens comprising females, a most unusual trait in the Castniidae. Illustration by Michael F. Braby.

Minutes of the Members Meeting 8 December 2009

Present: D. Hewish, M. Hewish, P. Marriott, M. Fiedel, M. Endersby, I. Endersby, S. Curle, G. Weeks, K. Harris, L. Rogan, D. Stewart, V. Curle, S. Curle, M. Kesavan, R. Best, P. Carwardine, T.Barberi, J. Grubb, J Grubb

Apologies: P. Lillywhite , T. Morton, D. Dobrosak, , A. Cooper, K. Walker

Special thanks were given to Simon Hinkley from the Museum Discovery Centre who opened the Centre for us and stayed to enable us to meet.

Minutes:

Due to a printing problem, we have not been able to publish the previous minutes in time for this meeting.

Correspondence:

Membership

The following entomological enthusiasts have been duly elected as members of the society:

- Tiziano Barberi

Received proposal for new member:

- Eileen Collins from Chiltern, Victoria who is interested in flora and fauna
- Alan Melville from Burnie, Tasmania who is interested in Moths

Treasurers Report:

- General account $6089, Le Souëf account $5464, publication $9811.
- All current members are paid up to date.
- Ian advised that there is an amended constitution being proposed for the society and will be available prior to the AGM in the February 2010 newsletter. This does mean that we need the quorum of 15 members to attend the AGM in order to accept the proposed changes.

Editors report:

No editor's report was available as the society is still awaiting the appointment of a new editor.

Le Souëf Award:

No nominations have been received so far this year.

Note: The Conservation and ENTRECS Committees are still in recess

General Business:

A number of our members had brought along items for discussion and information to share – as well as of course, some Christmassy wares ☺

Linda Rogan

Linda brought along a selection of bees that she had recently collected from a local flowering Eucalyptus. She had initially thought that there were at least two species, but on closer inspection – and this needed the Discovery Centre's microscope (!), there appeared to be another very very tiny species of bee. This has yet to be confirmed or identified.

There is some thought that it could belong to the Eurycoma group, from reference to the Charles Raymont's Bee book

Linda was also able to bring along copies of her excellent Imperial Blue presentation on CD.

Peter Carwardine

Peter brought along an experimental container that he has been working on for his local school. The general idea is to make breeding butterflies in captivity as easy as possible and thus enable the children to gain further knowledge of these fascinating creatures. Peter's objective, if you like, is to supply this to a school with the theory, "Just Add Water"...

The container itself is a flower pot for planning the larval foodplant. Peter has found Stinging Nettle and thus the Yellow Admiral (Vanessa itea) to be suitable subjects for this.

The container that then sits over the flower pot is a couple of pieces of plastic sheet, wrapped around a wire loop and sealed along the long edge. This make a clear tube that enables the subjects to be clearly observed. Then, on the top, a mesh cover. To help avoid condensation, the plant pot is placed on some supports to enable airflow through the container.

Peter has already learnt from these experiments with 'non butterfly' people, that moving the apparatus around was awkward as the plastic tube is not secured to the pot. Placing it a plate made carrying it a lot easier .

The idea is, that after the butterflies have been observed laying a couple of eggs, the plant is transplanted to the pot and given to the school children to observe the life cycle.

Peter continues with this and is having success so far with his trials.

Steve Curle

Steve brought in a Saunders Case Moth caterpillar (Metura elongate). It was sleeved on a potted Fejoia. Mari Ward had donated this individual to Steve not knowing too much about it. It had been nicknamed Speedy by Mari which seemed an odd name for a caterpillar that seemingly sat around and did nothing for 3 months. However, whilst showing the case to the meeting, 'Speedy' decided to pop his head out for a good look around. He must have known he was on stage!

Steve originally bought the sleeved critter in to show as an example of sleeving and rearing caterpillars on a potted plant.

David Stewart

David gave us a presentation on what he believes to be a local colony of Silky Hairstreak *Pseudalmenus chlorinda* at Paradise Beach, on Ninety Mile Beach east of Sale Vic.
David first observed the colony seven years ago on three of eleven Acacia *Acacia sophorae* plants growing on a house block and has managed to conserve the vegetation over the past eleven years but has now received a vegetation reduction order for this summer's bushfire season.
Following that first season of observation dry conditions killed some of the host acacia and the larvae were not observed again despite searching each year. However this season's plant growth response to good rainfall has resulted in strong new foliage growth and seven *A. sophorae* were supporting numbers of the larvae at all stages with eggs observed in the petiole axils.

David was able to show us how the tending ants and larvae, at night when it was raining, actually made little shelters by the fastening of two to three adjoining phylodes with two to four silken threads.

David was also able to show images of fauna and flora from his site close to Mount Korong, near Inglewood; an area enduring drought conditions for the past 10 years. David showed us just how dry and informed us that over the past five years of his observations, that for three months of the year the dams at the site are completely dry. Reasonable rains late 2009 have resulted in the best *Calytrix tetragona* flowering that David has seen. David also showed images of scores of a Buprestid feeding and copulating on one of *these C. tetragona* .
Over recent years the seasonal observation of these jewel beetles is of one of two beetles seen on only one or two plants over the observation area of ninety acres. Other images showed two fly species that were observed in numbers over a two week period transferring pollen on small everlasting daisies.

Russell Best

Russell was able to show us a brand new, not yet released update to the web application called NatureShare. Russell was able to obtain funding from DSE for the web application and is now moving into the new Web 2.0 world.

NatureShare has the capability to record and share all manner of sightings, photographs, etc and share this information (especially photographs) with other NatureShare projects across the State. This is not just restricted to insects but all flora and fauna. NatureShare also interfaces with and utilises other freely available web applications, for example, Google Maps.

NatureShare will be self managing and will have the ability for people to check each others records and name unknown species that have been photographed by others. Anybody can create projects whether at the individual household level or a community group.

To ensure consistency of sightings, and avoid misspellings, they have so far been able to load all of the names of mammals, birds, reptiles, frogs and plants listed as occurring in Victoria. However, they really need some assistance with getting the insects into the site and are looking for species listings of Victorian insects.

Maik Fiedel

Maik brought in some Stick Insects that he had recently discovered on a Rose bush in Moomba, Qld. Maik believes these t be the Indian Stick insect - Carausius morosus!

We believe this is a restricted species in Australia and will put Maik in touch with AQIS.

Next Meetings:

If you are planning to attend any of these meetings; please refer to the website for any last minute amendments.

2010:			
Month	Date	Planned event	
January:		No meeting	
February:	16th	General Meeting	Martin O'Brien; threatened species conservation in Victoria
March:	16th	Council Meeting	
April:	20th	AGM	(proposed) Richard Marchant; fresh water invertebrates including a study of those eaten by platypus.
May:	18th	Council meeting	
June:	15th	General meeting	Members' presentations
July:	20th	Council meeting	
August:	17th	Members excursion	This is currently looking like it will be a water related excursion.
September:	21st	Council meeting	
October:	19th	General meeting	To be advised.
November:	16th	Council meeting	
December:	14th	General meeting	Members' presentations Please note, December's meeting date is second Tuesday of December to try and avoid Christmas celebrations.

Meeting closed at 21:25 followed by Mince Pies, cream and light refreshments.

Overview of the butterfly database: Part 3 – Quality assurance

Kelvyn L Dunn

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Summary: Part 2 of this series (Dunn 2009) discussed components and skews in the data set. It drew attention to the lower numbers of records from the west and north of the continent, reviewing factors that promoted these imbalances. This third part explores issues of quality assurance linked to measurements by samples, which by definition are incomplete appraisals of the whole. It presents a new study on error estimation using a randomised sample and compares the findings with those from an earlier study based on a thematic sample. The current study has power to generalise and is similarly supportive of database quality in terms of extraction and data-entry processes. Rigorously estimated at 98.5 percent accurate in these components, transcriptive errors exist in very low numbers and are unlikely to compromise any particular map other than as remote outliers. The overall precision of data handling supports the database's trustworthiness as a tool to examine distributions of taxa.

7. Quality Assurance

Sampling perfection for butterfly distribution is an ideal rather than a reality. It brings to surface aspects of uncertainty in the coverage of the variables of interest, dependent on the sampling procedures utilised and the sample size. A census of all museums and collections, although optimal for highest precision and maximal coverage, was outside the time and funding constraints of the project. Inability to access many private collections also limited progression towards data saturation. This has reduced the alignment of the maps with collectors' field experiences of some common species' wider distributions. Most butterfly knowledge amasses from opportunism rather than structured surveys (Dunn 2009), and for this reason, knowledge of species' finer – rather than broader – distributions is still being refined (Sands & New 2002, Dunn & Dunn 2006, Dunn 2009, Franklin 2007, Pierce 2008). Complicating this, the spatial and temporal distributions remain unknowable in absolute terms. Both within and without established range limits, meta-populations 'boom and bust', and migrations establish or reinforce extra-limital populations that may breed for several seasons in areas which are normally sub-optimal.

In the mid-1990s, some northern Australian butterfly experts voiced concerns relating to the regional coverage of the database and the collative processes involved. Their concerns were later examined and discussed (Dunn & Dunn 2006: Notes 18 & 19). Johnson and Valentine (2007) have since raised new concerns, this time relating to the adequacy of historic coverage in the sample used for the 1991 atlas set. Specifying one endemic species group as their working example, these authors listed one site omission that linked directly to the museum-sampling processes on the part of the compilers. They then generalised about the database representativeness for that genus based on this shortfall in sampling coverage, which I quote. "*Recent published depictions of the distributions of Jalmenus spp. in Western Australia are inaccurate because Dunn and Dunn (1991) did not include data from the Waterhouse collection, which is the most important historical collection of Australian butterflies*" (p.82). Obviously, under a frame of absolutism every map in Dunn and Dunn (1991) is inaccurate because of known and unknown omissions linked to a methodology of convenience sampling of institutions' records. This said, although the G.A. Waterhouse collection in the Australian Museum (Sydney) was not examined personally, at least 7,774 specimen-records from 33 of Waterhouse's publications (spanning 1903 to 1942) were incorporated into the maps, these being compensatory to an extent. Dunn and Dunn (2006; see Note 18) reminded users that the 1991 maps did not incorporate every known literature record or specimen, but were generated from a large sample – over 88,000 records – believed to be broadly representative. That sample comprised about 51 percent of all records of

Australian butterflies in institutions (Dunn & Dunn 2006), sufficient to provide a snapshot of species distribution at the close of the 20th Century. Given this, it is unreasonable to dismiss the maps of one or more genera, or the baseline data, as inadequate due to lack of saturation, as evinced by overlooked sites for particular species – which must and will exist. Yet, even if all known records were available for inclusion, the maps would still be 'inaccurate' due to field sampling biases and changes in distributions across time.

Raised by some as an issue of quality of composition, duplication of records can create distortions if numerous. Usually after the addition of large data sets to the database, computer algorithms sought out and deleted exact matches in most fields. A highly refined detection program, that examined multiple fields for very close similarities, and used in the late 2000s, provided an estimate of these more subtle examples. Cross-examination of a convenience sample, namely the first consecutive 49,322 records in the database, identified 146 complex duplicates on its inaugural trial. Keyboard entry, as the user-approval for major change, selected and eliminated one per match as redundant; each case judged on its own merits according to the established criteria of a 'different' record in the database. The investigation implied that the database would accumulate about 296 'complex' duplicate records per 100,000 entries. Slight differences in fields indicate uniqueness to algorithms that eliminate by exact data matching, and so leaving these undetected across the project history. Yet, 0.296 percent (complex) duplication in the baseline data is very low; and this would not have significantly distorted the temporal charts created from the baseline in 1991. Moreover, for each source or repository, only those specimens (of the same species) with different label information rank as unique. Even different sexes of a species in a repository equate to a single record when labelled identically. By contrast, in institutional databases or their digitised catalogues, every specimen (irrespective of label exactness) receives a unique record number and equates to a separate record. Thus, all but one record arising from these large series of specimens, amassed from single collecting events, would be eliminated as 'duplications' by definition (see Dunn & Dunn 2006: Notes 14). In essence, the temporal charts that displayed record counts for species across regions, understated (rather than overstated) specimen holdings in collections. Hence, the sample size at over 88,000 was conservative in the 1991 atlas work, not bolstered to add credence. Those duplicates that escaped detection at times of addition of large record sets, have remained few and inconsequential (Dunn & Dunn 2006).

7(a). Interpretations of damage

Scientists can approach collated evidence containing measures of uncertainty in two ways. The first, as inferential in the published opinion of Johnson and Valentine (2007), is to argue that the uncertainty in coverage precludes any firm conclusions of species presence – and obviously absence too – due to the said 'inaccuracy' (p.82). An anonymous critic had earlier argued similarly, concerning the use of the atlas for fact reinforcement. "*To make the assertion that Dunn and Dunn (1991) do not record a species from somewhere in the tropics is to do no more than indicate the futility of relying on such a limited database.*" (Anon. 1995 quoted in Dunn & Dunn 2006: 838). An absolutist approach like this, apart from seeming competitively oppositional, fails to recognise that all scientific evidence derived from samples contains sources of uncertainty, and in this case, will include site omissions as a truism. Moreover, greater representativeness is variably proportional to increasing sample size, and so dismissal of the sample as too "limited" – which statistically 88,870 records is unlikely to be – must then discount all available knowledge about the depicted distributions of Australian species. The reason being, that none of the other literature sources at that time (or since) has been census-based or used a much larger sample than the atlas project.

Those whose' approach relentlessly applies the logic of dismissal could conclude that nothing is knowable about any Australian butterfly species' spatial and temporal distributions because of real or even imagined flaws in the baseline data and/or sampling procedures. Alternatively, one may advocate for the drawing of interim conclusions based on the weight of the supportive evidence (51%

of museum records examined), and yet still recognise the uncertainties and coverage limitations. Clearly, the plotted maps show species' presence, rather than absence within known ranges. In addition, they have limited potential to predict the latter except beyond ranges as defined by the outermost plots. Hence, voids within ranges do not necessarily infer areas of species absence, nor do they imply that no records exist in any other databases or collections. Use of the second approach – of drawing interim conclusions – means then that in areas of sampling shortfall, voids indicate a knowledge gap, and raise a need to confirm the relevant species' presences. Confirmative collecting will enrich the baseline until such time that census plotting through institutional synergism eventually becomes available. For the present, a healthier measure of scepticism involves informed use of available evidence, particularly given the low number of overlooked sites or important records exposed to date (Dunn & Dunn 2006).

Collector opinions would suggest that the database project polarised some butterfly experts, a few of whom later bantered for unfair dismissal of the evidence without offering balanced and stand-alone justification (Dunn & Dunn 2006). It seems then that there are times when even the best intended *"...scientific scholarship is not immune from strong emotion"*, as O'Dea (2006: 36) earlier reflected on issues of controversy in Australian entomology. More important than exposure of minor gaps to weaken the sample's credibility (or even inferences of bolstering by inclusion of supposed excess duplications) is whether there was adequate agreement of the maps with those preceding standard works. In reality the atlas maps actually matched the synoptic charts in the classic text of 1981 very closely (Dunn & Dunn 2006), and were supportive of Common and Waterhouse's depictions wherever the original sources could be traced.

Again, from an absolutist's perspective – outlined earlier as the 'first approach' – even a single error in 88,000 records might create a seriously flawed output, modifying a distribution. In fact, as evidence of this, Dunn & Dunn (1991 – see corrigenda) revealed a mistaken locality for *Oreisplanus*, linked to confused rendering of literature, which enlarged upon its known range in Victoria. Instances of range reductions too, resulted from omissions of several important sites for some Kimberley species, due to two regional literature sources being unavailable at the time of research. These particular oversights carried through to the maps in Braby (2000). Of interest, one or more other workers' errors have inadvertently linked themselves to the project history, usually by misrepresentation of the atlas work through citation. For example, an ambiguous report in Braby (2000: 182) of a bizarrely incorrect distance and wrong direction from Yaouk, NSW, seems attributed to Dunn and Dunn (1991) by usage of citation, inferentially reflecting on quality of care in data entry. However, this was not a copying error during data processing, as the specimens' labels were in fact erroneous. The outcome for the *Mesodina* species concerned was inconsequential, due to the small distance involved from the actual site of collection. Another report astonishingly misconstrued biogeographic content, sourcing this in part to the atlas work (see Scriber *et al.* 2007 cf. Anon 2007). Where they exist, those genuine locality errors and omissions exposed to date (see Braby 2000 *cf.* Dunn & Dunn 2006), including those singled out above, are not grounds for dismissal of the maps simply by argument of proof of inaccuracies.

7(b). Reliability of identifications – the project under-girders

Inaccuracy in identifications can create serious complicities in terms of errors of commission or consequential omissions on maps and in temporal charts. The author has done most identification of specimens, making for uniformity. However, the database has also relied heavily on the identifications of its many contributors and those in publications. Because species identifications are subject to qualifiers, aspects of ambiguity will arise. For this reason, experts' identifications for some species, especially within groups of close relatedness, can be tentative without dissections or, in recent years, genetic appraisals. To limit errors of commission, data from females where confusion exists (eg. some Hesperiine skippers, where characters may merge between the sibling species), were largely excluded (Dunn & Dunn 1991). In addition, the opinion of E.D. Edwards (CSIRO) – one of Australia's

leading taxonomic scholars on butterflies and moths – was often sought, and aided placement of some perplexing specimens.

Accurate species identification remains the quintessential factor on which the reliability of the database records anchor. Dunn and Dunn (2006) discussed 59 notable locality issues exposed on the plotted maps that linked to the compilers' decision-making. Thirty involved mistaken identifications of species, creative of errors of commission. The most spectacular example presented on the map of *Vanessa cardui*, where a record of *V. kershawi* was mistakenly included, resulting in an outlier locality in South Australia – far beyond where the species occurs! Mistaken localities (unlinked to identifications) accounted for another six of these. The remaining 23 were overlooked records of importance linked to the sampling process, rather than being errors per se. The 36 instances of species depicted where they were unknown to occur would equate to 0.04 percent of the database records (4 in 10,000) as responsible. These figures provide a crude estimate to factor in mistakes in identifications that will on the balance of chance noticeably modified distributions. By proportion, 30 out of 36, being 83 percent, suggests about five times the order of magnitude for identification issues, when compared to the frequency of mistaken localities. Human error dictates some level of imperfection, but relative to the database size in 1991, these thirty mistakes in identifications represent little over 0.03 percent of the total plotted records (ie. 3 in 10,000). This is a very low level of inaccuracy and suggests both quality and exactitude on behalf of the compilers and identifiers. Bryan (2006: 190) confirms identification competency as paramount and an essential skill for project quality: *"Without the ability to identify specimens, collation of information on the individual species would have … little value."*

7(c). Errors and omissions – 'statistics-speak'!

Braby (1999) explained, in plain English, the decision-making errors relating to inclusion or exclusion of records from the baseline knowledge, which he had adapted for his purposes from abstractions of Probability and Statistics. He stated that a Type I Error occurs where one accepts a false record as true, and that a Type II error results where one rejects a true record as false. In terms of species' range depictions then, these errors result in over-inclusiveness and over-restrictiveness, respectively. Braby (1999: 106) judged that in terms of records (specifying 'observations' in his discussion, but similarly inferential of collated butterfly data as in a database application), *"Type I errors are probably more serious"* as these involve documentation of misinformation. This, as a commission, involves plotting species where they are presently unknown, or do not occur, as was the case for *Oreisplanus*, mentioned earlier, wrongly attributed to Wilsons Promontory, Victoria. However, had the data omission from the Waterhouse collection, discussed by Johnson and Valentine (2007), been conservatively discarded as false during processing of records, rather than not sampled at all, then this would be categorised as a Type II error. Records exposed as 'omissions', which alarm some colleagues as evidence of inaccuracy, are not errors by definition of rejection but an imperfection of coverage that arises when analysing knowledge too vast to assess by direct measurement. Omissions, become fewer when samples are very large – a supposition that under-girds probability theory, yet still carries with it an expectation of incompleteness in anything less than a whole census (Dunn & Dunn 2006).

8. A study on the validity of data entry

To evaluate the accuracy of data entry, I performed two statistical analyses of samples of different coverage. The first investigation used a thematic sample, defined by an historic collector's records, namely those of Hermann Elgner, based on direct attribution on the label data or other reliable linkage to him (Dunn 2007). The second study, newly presented below, used a randomised sample of records from a single repository, namely the ANIC, as a data subset. Both studies have limitations regarding generalisation of the findings to the whole database. To enable

comparison, each study involved the same definition of 'erroneous' data. Namely, that typographical errors considered 'serious' were those that created misleading information. Such errors involved mistaken entries in dates, years, distances from specified sites, or collector codes, with each corruption essentially implicating unique and seemingly accurate, albeit false data (creative of Type I errors). Counts of Type I Errors therefore comprised only damaging examples. On this basis, counts excluded trivial misspellings of no sequential consequences, such as locality name spellings where no ambiguity in the interpretation of that information had resulted. The present study thus aimed to quantify the error frequency and assess any damage likelihood to the whole by extrapolation of findings for data entry errors.

8(a). Error analyses: definitions

Two research terms used in the following sections require definition. *Validity* is "the accuracy of transcription of each copied record, irrespective of its correctness or veraciousness", and *Reliability* measures "the database's ability to transmit accurate knowledge of species data for inferential constructions" (Dunn 2007: 30). For clarity here, 'veraciousness' indicates the measure of accuracy supposed by the collector to be so, and 'correctness' refers to how that same intended accuracy actually measures against a standard of literal interpretation. Reliability is more encompassing than validity, as it includes an estimation of specimen label errors that exist in collections, on the balance of probabilities. Generalised reliability thus attempts to measure three tiers of transmission errors (see Dunn & Dunn 2006) across the whole process, spanning from field survey to computer entry. It approximates the worst case scenario.

8(b). Error estimation: Summary of study 1 (from Dunn 2007)

Dunn (2007) described the methodology for study 1, which utilised a thematic sample (n=1407) characterised by a fixed, historic collector, and involved extensive cross-examination of records. Only six (54%) of the eleven errors found were linked to extraction and data-entry processes, and so were attributable to the database compilers (KLD & LED and assistants), equating to an entry inaccuracy of only 0.426 percent. This provides an estimate of about 426 records with damaging typographical errors per one hundred thousand (100,000) believed to have been entered accurately. Overall, the Elgner sample scored 99.6% for 'validity' of record entry (Dunn 2007: 30-31). When all 11 errors were considered, the score then lowered slightly to 99.2% providing a measure of 'reliability' of the data (Dunn 2007: 30-31). This component combines all of the data-entry mistakes, literature errors, and label errors detected. A high score for generalised reliability across the database, as reported therein, lowers the stakes for acceptance of incorrect information, namely Type I Errors (Mendenhall, *et al.* 2003). The 'generalised' reliability – the extrapolation of the reliability figure – then provided a maximum estimate of 782 potentially serious errors per one hundred thousand (100,000) records (Dunn 2007). Acceptance of these estimations must recognise the limitations of the convenience sample (designated by fixed collector) and its uncertainty in terms of its representativeness of the whole database.

8(c). Error estimation: Study 2

The problems inherent in a thematic design indicated the need for a randomised and hence, statistically stronger sample with greater powers of generalisation (Dunn 2007). This led to Study 2, focussing on the validity of data entry. However, a comparative calculation of the 'reliability' of the ANIC data set was not achievable. The reason being, that multiple collectors act as a confounding factor, as labelling conscientiousness varies among individuals. This adds in an unknown and unmeasurable dimension in terms of the correctness of the data and its veraciousness (as defined earlier).

i. Aim: This second study investigated the validity of data entry processes using a random sample of records from the ANIC data subset within the database.

ii. Method: I cross-examined a sample of 1010 records, selected at random from the original handwritten extracts of ANIC data (two or three records visually selected per page), and checked each with the digital format in the database. The ANIC data compiled up to 1990 inclusive and utilised in the 1991 maps, thus served as the convenience-based subset of fixed repository, and at circa 27,000 records in total, this subset presently comprises about 21 percent of the database. Records examined included those with lengthier descriptive localities or other complex data components, as well as very simple records of label brevity. Each selection was examined for data-entry accuracy across at least five fields (viz. location, date, and whether bred or not, collector, and the assigned repository code). Where anomalies presented, species identifications checked in process added a sixth field for some.

iii. Results: The study detected fifteen (15) critical errors that misconstrued, in their digitised format, the renderings to degrees creative of Type I errors. This proportion (error rate of 1.485%, n=1010) equates to a record validity of 98.5% (slightly lower than in Study 1) and rigorously estimates the accuracy of the ANIC data subset. Mismatches against other similar records that should have matched by place and visit, exposed likely errors for investigation. Proxy examination of the specimen labels at the ANIC revealed whether the label data itself was inconsistent with others of the same survey (errors of labelling - first tier), or whether the hand-written transcripts were at fault (transcriptive - second tier transmissions). Thirteen (87%) of the 15 errors exposed had resulted during data-entry onto computer (typographic - third tier transmission errors). The other two (13%) were transcriptive (second tier) and occurred during data extraction from the specimen labels. The two (second tier) errors had involved the incorrect copying of the months and years specified on the labels (namely, "Jul" rather than 'Jun' and a year of "1958" rather than '1968'; each confirmed by re-examination of the specimen labels. No errors of labelling (first tier) were exposed; most of which are likely to be undetectable if the label data seem reasonable).

iv. Limitations: As with Study 1, this investigation assumes that species' identifications are immutable facts, whereas in reality they are assertions of the identifier, qualified by degrees of accuracy and at times open to uncertainty (Dunn & Dunn 2006). In contrast, the label data is more concrete, presenting as literal statements. Unlike Study 1, which compared records against the established movements of a single collector (Dunn 2007), this study does not estimate the likelihood of errors on specimen labels across multiple collectors. Labelling quality remains an unknown quantity across the decades of collecting, with much discrepancy exposed (Dunn & Dunn 1991). For this reason then, an estimation of 'generalised reliability' remains problematic in this design.

v. Conclusions: Compared with the thematic analysis, the current study exposed a 1.1 percent lower validity, in terms of perfection of record entry. At merely 1.5 percent, transcriptive and typographic errors (2nd & 3rd tier) exist in very low numbers and are unlikely to have contaminated any particular map, other than as remote outliers on a select few. Objectively, it is the plot clusters, rather than single points, that are most implicative of strongholds of species' occupancy, by interpolative reasoning. Outlier sites as rare events or unstable populations may indicate uncertain residency over the longer term, often linked to natural fluctuations in climatic and biotic systems. Outliers, where based on unique records, raise the need for cautious interpretations, and consideration as to their potential for error.

8(d). Discussion: estimations of the validity and reliability of the database

Both studies are supportive of database quality. Each study has specific limitations in terms of its generalisability, but the findings for the validity of data entry are similar to each other. When taken together these refine the error estimations for the sampled components of the database. The thematic sample was limited by being convenience-based and involved simple, less varied data components with a fixed collector (of demonstrated reliability), and screened the whole database for the same configurations (Dunn 2007). Inclusion of multiple sources/repositories containing Elgner data, equating to independent accessions compiled over years of the database history, enabled comparisons across individual records. This has served to strengthen the 'Elgner census study'. However the findings for a fixed collector may not be representative of other contributors, some of whom may be of lesser conscientiousness. This raises concerns over the generalisability of the measure of reliability (but not validity). In contrast, the ANIC study was randomised across several fields, but did not capture the whole database, yet the fixed repository actually specifies a very large subset of data (n=27,000 records). Representing about a fifth of the whole database, the estimation from this sampled subset can reasonably generalise as a measure of the validity of data entry (for the ANIC material), reckoning an error rate of 1.485 percent. This figure when generalised to the whole, estimates a maximum of 1485 records with an erroneous component in at least one field per 100,000 records in the database. Considering the validity scores of both studies (range: 426-1485), an average of 956 errors per 100,000 records (equating to 0.956% inaccuracy) may provide a balanced estimation of 'data-entry error', likely serving as a conservative generalisation for the whole database. By corollary, 99.044% accuracy of data transmission from labels to computer, as averaged, supports the database's trustworthiness, and usefulness as a research tool, as earlier claimed (Dunn 2008).

Assessing reliability remains problematic. To examine a random sample that is optimally representative of the whole database without limitations or need for extrapolation, namely, spanning all repositories and fields and crosschecking these at each level, including re-examination of labels, would be enormously time-consuming. Indeed, this is now impracticable due to an inability to check some data with private contributors who are now deceased or are no longer participatory in this scheme. Given these complexities and constraints, the ANIC data, being the largest checkable specimen-based subset, has served adequately as an alternative for maximal estimations of transcription errors. Moreover, given the order of magnitude implicated earlier (Sect. 7b), errors linked to species identifications would increase this averaged estimate of 0.96 percent inaccuracy, as calculated above, by up to four or five fold perhaps. Speculatively, as a worst case scenario, the combined inaccuracy might be in the order of four (4) percent, predictions of mistaken identifications, estimates of label errors, and all data processing components considered.

9. Reflections and sensitivities

Over the history of the project, the compilers have attempted to find, eliminate or correct dubious data when exposed (Dunn & Dunn 2006). The compilers scrutinise incoming records as to their veraciousness using a healthy measure of scepticism (Dunn 1985, Dunn & Dunn 1991 & 2006). Marking those that seem erroneous or very doubtful at a level of 'beyond reasonable doubt' or on 'the balance of probabilities', respectively, has been the means of segregation. Approval of the remainder as literally acceptable, also hinges 'on the balance of probabilities', as it is essentially an unknown quantity (Edwards 1999). In saying this, the compilers recognise human fallibility in science as part of fact gathering, but expect contributor – as well as compiler – accountability (Dunn 2008). Given that most workers take a measure of pride in their contributions, it is expected that some data supplied as trustworthy and later queried may be cloaked with human emotion (O'Dea 2006). Obviously then, sensitivities may arise when attempting to balance the concerns in favour of database reliability.

These days, field observations are an expanding component of the database, aligned with its conservation directive (Dunn 2008). Franklin *et al.* (2005: 1) noted that *"harnessing such records is dependent upon the ability to accurately identify species in the field."* This said, photographing select examples (be it time consuming) or releasing examined adults (subject to any legal conservation directives) certainly helps raise standards here. What can be of concern though, are unusual observations reported by proxy. Where published – and they can be of interest – hearsay reports are best emphasised as unconfirmed, cautiously reported as curios or possibilities – to promote survey – rather than as new information for the scientific record. The remote outlier record of *Graphium sarpedon* from Victoria (Burns 1988) was one such example from the atlas era that alerted to this issue. As secondary-sourced information, it was excluded from the relevant map (Dunn & Dunn 1991), despite the plausible behaviours described, and which rally to its support.

As a project under-girder, exclusion of dubious records from supply to others helps maintain veracity (Dunn 2008), but this elimination is often difficult and opinions over likelihood of particular records can later polarise some scholars or contributors. Value judgements aside, quality assurance remains vital in order to safeguard and advance knowledge. Hence, following the example of Australia's greatest literary mentor in the study of Australian butterflies to date, namely G.A. Waterhouse himself, I do not believe that sensitivity remains reason alone to be silent where doubt or evidence of carelessness arises. Likewise, the beliefs expounded by Miller and Clench (1968), namely, upholding rigour and admissions of doubt where recognised, must stand resolute. Indelibly reverential, these workers' philosophies of thoroughness encapsulate our own hoped-for standards as compilers, maintained over the last 27 years labouring on the database project as a hobby venture.

Acknowledgments

I thank Ted Edwards (CSIRO, Canberra) for patiently checking label details to assist estimations of the validity of data entry for this project. Tracing the individual specimens was no small job when considering the ca. 86 cabinets, of 10 drawers each, comprising the Australian butterfly collection at the ANIC!

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A New Hawk Moth Record (*Cizara ardeniae* (Lewin): Sphingidae) for the State of Victoria

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While preparing distribution maps for the Australian Sphingidae fauna for a joint book effort with Max Moulds of Kuranda, Qld, the author discovered references to Victorian specimens of *Cizara ardeniae* among his notes. Max's 20+ year-old notes indicated that four specimens in the collection of Ray Manskie of Maryborough, Qld, had been taken nectaring at flowers at dusk over the period of three years near Noorinbee, Victoria, in the early 1970s.

Since it was a significant southern range extension for *C. ardeniae* and a new state record for Victoria, the author set out to examine the specimens. Through Dr. Rod Eastwood, it was determined that Ray Manskie's large Lepidoptera collection had been donated to the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA. Dr. Eastwood examined the Manskie material and indicated there are three *C. ardeniae* specimens amongst the Manskie material which bear Noorinbee labels with the following dates:

♀ 29-12-1971, ♀ 3-1-1972, ♂ 3-1-1972

Dr. Eastwood is a personal friend of Ray Manskie and was able to add some additional insight. Ray Manskie regularly collected in east Gippsland, and he collected four specimens while nectaring at flowers of Buddleia in the garden of the late Archie May, Cann River, Noorinbee.

It is suspected that the fourth specimen [labelled 1-1-1970 according to Max's notes] may have ultimately made its way into the Melbourne Museum collection; a specimen in the collection has a label which reads "A. May 1930-1970 Queensland". When Archie May became blind he passed his collection to David Holmes. Archie rarely labelled specimens and David created the label cited above based on Archie's collecting procedures (Pers. comm., Peter Marriott). As a result, the Melbourne Museum does not have a confirmed voucher specimen of *C. ardeniae* from Victoria. Given their local significance and with the consent of Ray Manskie, the Museum of Comparative Zoology has agreed to donate two of the specimens to the Melbourne Museum collection.

The condition of the specimens, presence of females, and captures over a three year period suggest that *C. ardeniae* is, or was at least temporarily, breeding in the far east of the state. Across its range, the species utilizes various members of the plant family Rubiaceae as larval hosts. Furthering the possibility that *C. ardeniae* maintains a breeding population in east Gippsland, two of the known larval host plant genera, *Coprosma* and *Morinda*, are known from the region (2009).

Reference:

Ross, J.H. and N.G. Walsh. (2009) A Census of the Vascular Plants of Victoria. National Herbarium of Victoria, South Yarra, Vic.

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Notice of Annual General Meeting

Please be advised that Annual General Meeting of the Entomological Society of Victoria Inc. will be held on Tuesday 20April 2010 at 8PM at the Discovery Centre, Melbourne Museum.

The purpose of the meeting is to receive reports of Council and the election of Office Bearers and Council Members.

Nominations are called for the position of President, two Vice Presidents, Honorary Secretary, Honorary Treasurer, Editor and up to eight other Councillors.

Nominations in Writing and signed by the proposer, seconder and nominee, must be in the hands of the (retiring) secretary seven days prior to the Annual General Meeting.

Nomination forms are available from the Secretary, Steve Curle secretary@entsocvic.org.

The Annual General Meeting will be immediately followed by a General Meeting and guest speaker.

Winter Flying Moths of a Montane Wet Sclerophyll Forest in South-Eastern, New South Wales.

D.J. Ferguson, G. Cocking and E.D. Edwards
CSIRO Entomology, GPO Box 1700, Canberra, ACT 2601

Abstract

Systematic collecting of winter flying moths in a southern high altitude wet sclerophyll forest resulted in 321 specimens representing 43 species from 14 families. A novel light-trap design used for this study is described and illustrated. A newly discovered *Agriophara* sp. (Oecophoridae) and *Neumichtis* sp. (Noctuidae) with another undescribed *Neumichtis*, known from few specimens, are illustrated. Peak moth activity occurred during particular weather conditions.

Introduction

While malaise trapping for winter flying Diptera in June and July 2006 in a high altitude, southern montane, wet sclerophyll forest on the South Black Range east of Hoskinstown, south eastern New South Wales a surprising number of moths were also captured (Ferguson, 2007).

In June 2007 some preliminary light trapping was carried out in this environment and in 2008 a weekly light-trapping program began in early April at an altitude of 1180m and continued through to late September. Additional trapping was carried out through the winter months of 2009. Authors for species names and families to which they belong are given in Table 1.

All specimens collected have been deposited with the Australian National Insect Collection (ANIC), CSIRO Black Mountain Canberra.

Location

The South Black Range is 8 km east of Hoskinstown, with a peak altitude of 1262m. It is part of a longer range that rises from the general surrounding peneplain with a mean altitude around 700m southeast of Lake George and extends south to connect with the coastal dividing range at Brown Mountain, southeast of Cooma, New South Wales.

The Coast Range at Clyde Mountain intercepts warm moist coastal air which is forced upwards creating high rainfall and mesic vegetation. South Black Range is 20 km west of Clyde Mountain but higher and so intercepts some of the moist air, creating an overall somewhat drier but still wet eucalypt forest. In winter with significant rainfall coming from the west the South Black Range is moister and often shrouded in mist.

The collection site at 35°25'06"S, 149°32'05"E (GPS) is approximately 8km east of Hoskinstown at an altitude of 1180m, and is in an area old growth wet sclerophyll forest comprising *Eucalyptus viminalis* Labill, *Eucalyptus fraxinoides* H. Deane & Maiden and several other Eucalyptus species (Myrtaceae), that tower over an intermediate story dominated by *Acacia melanoxylon* R.Br (Fabaceae) and interspersed with *Banksia marginata* Cav. (Proteaceae) that grow amongst granite boulders and old weathered decomposing fallen timber. Ground vegetation comprises of

Lomandra longifolia Labill. (Xanthorrhoeaceae), *Dianella tasmanica* Hook.f. (Hemerocallidaceae), *Pteridium esculentum* (G.Forst), Cockayne (Hypolepidaceae) with clumps of *Gahnia sieberiana* Kunth (Cyperaceae) and *Poa* sp. (Poaceae).

Methods

The light-trap was installed at the one location throughout this study. Installation was in the evening before sunset and retrieved the following morning soon after sunrise. The trap was constructed of a timber frame, 62x40x30cm, that supported nylon fly wire containment. It had a funnel entrance across the top with a pair of slit entrances just below tube level, strengthened with a strand of wire, Fig.1. The ends were held in place with Velcro strips, this allowing access and the removal of captured moths. Two 'Super Force-Portable Rechargeable Lanterns' that had the acrylic covers removed were placed back to back, each holding two 8 watt fluorescent tubes. In June 2007 and from April to mid June 2008, a combination of 'daylight' and NEC Blacklight T5FL8BL tubes were used. From mid June to September 2008 four blacklight tubes were used. The trap was powered by a Century PS 6200, 6 volt 20 AH lead acid rechargeable battery ensuring the light worked all night. Cording attached to the four top corners allowed it to be suspended from a tree branch. With rain being forecast a vintage beach umbrella was arranged within the above branches. No killing agents were used as moths are not very active at this time of the year and settled quickly.

Trapping started on a weekly basis from the 7 April 2008 as winter conditions arrive early in the mountains and this also allowed for the observation of the autumn species. The trapping continued through to the 22nd September. Additional trapping was carried out during the winter of 2009. Mercury vapour lamps were also used in June 2008, as well as hand collecting and sweep netting on several occasions.

Results and Table

A total of 321 moths, representing 43 species, belonging to 14 families were collected through June, July and August, see Table 1.

Twelve species started flying in May and continuing into winter. Forty three species where recorded from the winter months, of these 16 species were represented by one or two specimens on the one night. Five species were represented by two specimens taken on two distant nights. Twenty two species were represented by three or more specimens collected on a night or over a series of nights.

Discussion

Several noteworthy species were captured; amongst these, a very large *Agriophara* sp. (Fig. 2a) collected from mid June through to early September. Males were predominantly collected, with several females appearing in late August. A *Guestia* sp. was collected from early June to the second week of August. The *Neumichtis* sp. 1 (Fig.2b) and the scarce *Neumichtis* sp. 2 (Fig.2c) were recorded from early May to mid-June. The single Lithinini (Geometridae, Ennominae) species was collected while sweep netting low vegetation in July. A single *Poecilasthena* sp. collected in June is similar to specimens of a small unnamed series collected in Tasmania and held in ANIC. A larger and darker 'winter form' of *Pararguda australasiae* captured from late May, were common through June and July after which numbers declined and stopped in mid August. The typical 'summer form' is also collected in the area later in the year. A small species *Lepidoscia* sp.1 was first

observed the early morning sunlight flying weakly above the ground vegetation; this was again observed two days later. The following year while sweep netting low vegetation additional specimens where collected in June and July. This species was not attracted to the light trap.

The preliminary use of malaise traps to assess various environments for their suitability for further systematic moth collecting would have its advantages.

The forest surrounding the trap site provided protection against very low temperatures. This became obvious while travelling to the collecting site in the early morning, where cleared farm land frosted, while the forest floor was not. Cloud cover provided protection, allowing enough warmth for moth activity. Windy, cloudless nights were often warm enough for moth activity, though these conditions were unfavorable for many species, with only a few of the stronger and robust species being encountered. Sub-zero temperatures that penetrated the forest completely stopped moth and all other insect activity.

The conditions for peak moth activity occurred infrequently and ideal conditions occurred just before a slow-moving, rain-bearing, low pressure weather front.

Moths were still active while melting snow was on the ground, happening in mid June after a very cold low-pressure systems passed over. The following nights were relatively warm, windless and shrouded in mist.

Acknowledgements

We thank Dr. Marianne Horak for identifying the Tortricidae; Dr. David Yeates for reviewing and commenting on the manuscript and Mr. Ian McMillan for the photographing the moth specimens. We also thank the New South Wales National Parks and Wildlife Service; permit number: S12588.

Reference

FERGUSON, D. J. 2007. Field Observations of *Perissomma mcalpinei* Colless (Diptera: Perissommatidae) *Australian Entomologist* 34: 93-96.

Taxon	No.s	May * June * July * Aug * Sept
HEPIALIDAE		
Oxycanus dirempta (Walker, 1865)	1	1
O. silvanus Tindale, 1935	1	1
PSYCHIDAE		
Lepidoscia sp.1	16	3=9==3=1
Lepidoscia sp.2	10	x===1===6=2=======1
Lepidoscia sp.3	1	1
Conoeca guildingi Scott, 1864	2	1 1
BUCCULATRICIDAE		
Ogmograptis sp.	2	2
GRACILLARIIDAE		
Undetermined sp.1	2	2
TORTRICIDEA		
Syllomatia pertinax (Meyrick, 1910)	2	1 1
Strepsicrates macropetana (Meyrick, 1881)	1	1
Hermenias sp.1	7	2==1====1===3
Hermenias sp.2	4	1=1=====1=====1
HELIOCOSMA Group		
Acmosara poyxema Meyrick, 1887	1	1
EPERYENIIDAE		
Epermenia exilis Meyrick, 1897	2	1 1
OECOPHORIDAE		
Guestia sp.	10	2====1=1====1====4======1
Philobota sp.	6	6
Agriophara sp.	38	1==1=====4==6====6===9=11 x
COSSIDAE		
Zyganisus fulvicollis (Gaede, 1933)	2	1 1
GEOMETRIDAE		
Chlenias auctaria Guenée, 1857	48	11=3=11=18=3=1==1
Chlenias ochrocrana Turner, 1947	16	1====1==1====2===7=4=
Chlenias sp.	2	2
Nisista sp.	1	1
Paralaea porphyrinaria (Guenée, 1857)	20	5=3=3=8=1
Fisera sp.	3	2=1
Lithinini species	1	1
Zermizinga sinuata (Warren, 1897)	1	1
Didymoctenia exsuperata (Walker, 1860)	1	1
Chlorocoma sp.	7	===2=5
Chrysolarentia subrectaria (Guenée, 1857)	3	1=1=1
Larentia apotoma (Turner, 1907	10	2=2=3==3
Microdes squamulata Guenée (1858)	1	1
Poecilasthena sp.	1	1
LASIOCAMPIDAE		
Pararguda australasiae (Fabricius,1775)	48	9=7=10=5=4=====4=6=1====1==1
ANTHELIDAE		
Anthela repleta (Walker, 1855)	17	5=1==3=3=3 1===1=
Anthela addita (Walker, 1865)	2	2
NOTODONTIDAE		
Trichiocercus sp.	1	1
Hylaeora capucina Fielder, 1874	8	3=2==1=========1=======1======
Sorama bicolor Walker, 1855	5	1===4=
NOCTUIDAE		
Praxis pandesma (Lower, 1902)	3	1==========1==1=====
Neumichtis sp.1	3	2===1
Neumichtis sp.2	5	2=1=1=1
Dasygaster padockina (Lae Guillou), 1841	4	1==1=1======1
Agrotis munda Walker, [1857]	2	1 1
Total:	321	

Table1. Species and numbers collected in June, July and August. Three or more specimens collected on a series of nights are indicated with; '===' . Twelve species flying in May continuing into winter, these are indicated with; x==' . Eight late winter species which were also collected in September are indicated in a similar way.

Fig.1, Light-trap suspended from a tree branch.

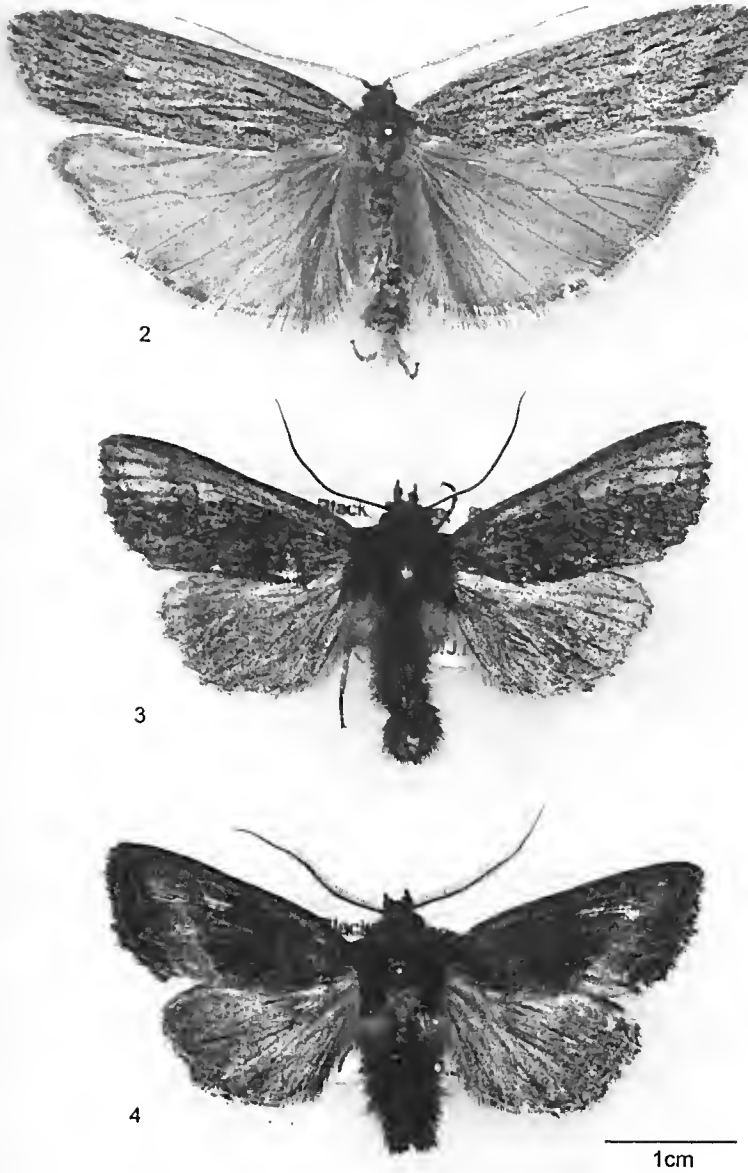

Fig.2, A newly discovered *Agriophara* sp.; Fig. 3, a newly discovered *Neumichtis* sp.1; Fig. 4, *Neumichtis* sp.2, known from few specimens collected from Tasmania and Victoria.

Author Index to Volume 39 (2009) of the *Victorian Entomologist*

Compiled by D. Dobrosak

Australian Journal of Entomology 48 (2) May 2009.

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

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Alterations to be made to the Constitution

The Council of the Entomological Society recommends that the following alterations be made to the Constitution of the Society. Members will be asked to approve these changes at the Annual General Meeting on 20 April 2010. A copy of the full Constitution can be found on the Society's website www.entsocvic.org.au

3. MEMBERSHIP

Delete Life Member category – it has never been invoked and the subscription rate to equate with Ordinary membership would be ridiculously high.

4. NOMINATION & ELECTION

Replace Clause 4 with

"An application of a person for membership of the Society must be in writing in the form set out in Appendix Inand lodged with the Secretary of the Society. As soon as practicable after the receipt of the application, the Secretary must refer the application to the Council, which must decide whether to approve or reject the application. If the Council approves an application for membership, the Secretary must, as soon as practicable, notify the applicant in writing of the approval and request payment within 28 days after the receipt of notification for the first year's annual subscription. Upon receipt of the annual subscription the Secretary must enter the applicant's name in the register of members.

An applicant for membership becomes a member and is entitled to exercise rights of membership when his or her name is entered on the register of members."

If the Council rejects an application, the Council must, as soon as practicable, notify the applicant in writing that the application has been rejected.

5. SUBSCRIPTIONS

Delete Life Member to be consistent with Clause 3(e)

Insert new Rule 7, and renumber subsequent Rules.

7 DISPUTES AND MEDIATION

(a) The grievance procedure set out in this rule applies to disputes under these Rules between a member and another member; or a member and the Association.

(b) The parties to the dispute must meet and discuss the matter in dispute, and, if possible, resolve the dispute within 14 days after the dispute comes to the attention of all of the parties.

(c) If the parties are unable to resolve the dispute at the meeting, or if a party fails to attend that meeting, then the parties must, within 10 days, hold a meeting in the presence of a mediator.

(d) The mediator must be a person chosen by agreement between the parties; or, in the absence of agreement:

(i) in the case of a dispute between a member and another member, a person appointed by the committee of the Association; or

(ii) in the case of a dispute between a member and the Association, a person who is a mediator appointed or employed by the Dispute Settlement Centre of Victoria (Department of Justice).

(e) A member of the Association can be a mediator.

(f) The mediator cannot be a member who is a party to the dispute.

(g) The parties to the dispute must, in good faith, attempt to settle the dispute by mediation.

(h) The mediator, in conducting the mediation, must give the parties to the mediation process every opportunity to be heard; and allow due consideration by all parties of any written statement submitted by any party; and ensure that natural justice is accorded to the parties to the dispute throughout the mediation process.

(i) The mediator must not determine the dispute.

(j) If the mediation process does not result in the dispute being resolved, the parties may seek to resolve the dispute in accordance with the Act or otherwise at law.

7. MANAGEMENT

Insert a new subclause

(e) Notices of meetings may be sent

(i) by prepaid post to the address appearing in the register of members, or

(ii) if the member requests, by electronic transmission.

and renumber subsequent subclauses

9. OFFICE BEARERS

3 The SECRETARY shall:

(c) Keep minutes of the [add "resolutions and"] proceedings of Council and General meetings.

Add (g) Hold the position of Public Officer

10. MEETINGS

Add "At any meeting of the members, or a Council meeting, if the President and the Vice President(s) are absent, or are unable to preside, the members present must choose one of their number to preside."

OFFICE BEARERS

PRESIDENT: *Peter Marriott* 8 Adam Street, Bentleigh, 3204 ph. 9557 7756 (AH)

VICE PRESIDENT: *Peter Carwardine*, 5/154 Grange Road, Carnegie 3163. ph. 9571 8958 (AH)

HON SECRETARY: *Steve Curle*, 5 York Street, Glen Waverley 3150. **secretary@entsocvic.org.au**

HON TREASURER: *Ian Endersby*, 56 Looker Road, Montmorency 3094. ph. 9435 4781 (AH)

HON EDITOR: *Daniel Dobrosak* **editor@entsocvic.org.au**

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WEBMASTER: *Vivienne Curle*, **secretary@entsocvic.org.au**

COUNCILLORS: *Dr. Ken Walker, Peter Lillywhite, D. Dobrosak*

CONTRIBUTIONS TO THE *VICTORIAN ENTOMOLOGIST*

The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

Contributions may be typed on A4 paper or sent to the Hon. editor in *Microsoft Word for Windows* with an enclosed hard copy. The main text of the news bulletin is prepared in 8 point, *Book Antiqua* font (please do not use fixed point paragraph spacing). Contributions may *preferably* be E-mailed to Internet address: **editor@entsocvic.org.au**

The deadline for each issue is the third Friday of each odd month.

The Society's Home Page on the World Wide Web is located at:

www.entsocvic.org.au

ADVERTISING

The charge for advertising is $5.00 per half page.

The *Victorian Entomologist* is printed at Minuteman Press Melbourne, 337 Little Lonsdale Street Melbourne, 3000, Telephone 03 9670 4533

CONTENTS

DIARY OF COMING EVENTS

Tuesday February 16th General Meeting

Martin O'Brien; threatened species conservation in Victoria

Tuesday March 16th

Council Meeting

Tuesday April 20th Annual General Meeting

ISSN 0310 – 678